

REMARKS

Claims 1-31 are all of the claims presently pending in the application.

It is noted that Applicant specifically states that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

Claims 1-8, 11-19, and 22-31 stand rejected under 35 USC §103(a) as unpatentable over US Patent 5,923,453 to Yoneyama. Claims 9, 10, 20, and 21 stand rejected under 35 USC §103(a) as unpatentable over Yoneyama, further in view of US Patent 6,708,004 to Homsey.

The prior art rejections are respectfully traversed in view of the following discussion.

I. THE CLAIMED INVENTION

Applicant's invention, as disclosed and claimed in independent claim 1, is directed to an optical transmission path monitoring system for monitoring optical transmission paths by wavelength-division multiplexing probe lights with signal lights of a wavelength division multiplexing optical transmission system. The monitoring system includes an optical fiber monitoring probe light for monitoring optical fibers, which constitute some parts of the optical transmission paths, and an optical amplifier-repeater monitoring probe light for monitoring optical amplifier-repeaters, which constitute other parts of said optical transmission paths.

As explained at lines 4-9 of page 3 of the present Application, the conventional methods monitor either only optical amplifiers are mainly monitored or optical fibers and optical amplifier-repeaters are collectively monitored as an optical transmission path without strictly differentiating them.

II. THE PRIOR ART REJECTIONS

The Examiner alleges that Yoneyama renders obvious the present invention defined by claims 1-8, 11-19, and 22-31 and, when combined with Homsey, renders obvious the remaining claims 9, 10, 20, and 21.

Applicant respectfully disagrees.

The present invention is characterized by at least the following features:

1. Optical fibers and optical amplifier-repeaters are monitored separately.

Monitoring probe lights of different wavelengths are allocated to optical fibers and optical amplifier-repeaters.

2. The probe lights are OTDR light and different wavelengths are allocated to the OTDR probe light for optical fiber monitoring, and the OTDR probe light for optical amplifier-repeater monitoring. Different wavelengths are allocated to OTDR probe lights between the up link and the down link.

3. Optical homodyne detection system is provided. A monitoring signal light from the optical fiber monitoring probe light is detected by a direct detection system.

4. Loop back paths for monitoring the probe lights are provided at every cascaded amplifier-repeater of the optical transmission line.

Because of the above features, the present invention has many benefits, as described in the paragraphs beginning at line 13 on page 22 through line 9 of page 24.

For example, the present invention permits fault isolation to position of the fault and whether the fault is due to an optical fiber or an optical amplifier-repeater (lines 13-18 of page 22). Additionally, monitoring is relatively immune from the effect of nonlinear deterioration (lines 2-3 of page 23), output fluctuations in repeater output can be monitored

with high sensitivity (lines 4-7 of page 23), monitoring can be unaffected by either polarization variations or the impact of phase noise to which the probe light is subjected by cross phase modulation (lines 24-26 of page 23), and, by setting monitoring lights outside the band of signal lights, making possible in-service monitoring without impact on the signal lights (lines 3-9 of page 24).

In contrast, although Yoneyama can arguably be said to provide the fourth feature identified above, it fails to provide the first three, and Homsey provides at most only the second feature.

Stated slightly differently, as pointed out above and as explained at lines 4-9 of page 3 of the present Application, the conventional wisdom is to either monitor only optical amplifiers or to monitor optical fibers and optical amplifier-repeaters collectively as an optical transmission path without strictly differentiating them.

Applicant submits that this conventional wisdom is clearly reflected in the description to which the Examiner points in Yoneyama (e.g., Figure 8 and column 7 at lines 9-31), particularly with the description at lines 11-13 of column 7: “In addition to the example as shown in FIG. 3, the supervisory light for monitoring the optical fiber transmission line property other than the signal light can be inserted.”

Applicant submits that this description clearly confirm the conventional wisdom described on page 3 of the present Application and that there is no suggestion whatsoever in Yoneyama that teaches against this conventional wisdom.

Moreover, it is submitted that Yoneyama’s purpose is clearly different from that of the claimed invention in that, as clearly described at lines 16-19, 29-32, and 49-54 of column 6, the mechanism in that reference is intended as a control for power to the light sources at the

various frequencies.

In contrast, as explained at lines 18-22 of page 1 of the present Application, the present invention addresses the problem of monitoring the optical transmission path for purpose of pinpointing to identify the position and cause of a fault.

Because of this difference in purpose, Applicant submits that one of ordinary skill in the art would not agree with the prior art evaluation currently of record, particularly given the conventional wisdom in this specific art that optical fibers and optical amplifier-repeaters are collectively monitored as an optical transmission path without strictly differentiating them.

That is, at most, the prior art evaluation merely makes the assertion that Yoneyama could be adapted to achieve the claimed invention. However, as clearly stated in MPEP §2143.01: “*The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.*” (Emphasis in MPEP itself). The prior art rejection itself, at the final sentence on page 2 of the Office Action, clearly uses an incorrect legal standard: “*... One skilled in the would clearly have recognized that the first and second probe lights taught by Yoneyama could have been used to monitor the optical fibers and the optical amplifier-repeaters of the system respectively.*”

That is, “... would have recognized.... could have been use to monitor....” is not the correct legal standard for review. Applicant submits that there is no suggestion in Yoneyama, absent impermissible hindsight, particularly in view of the conventional wisdom articulated on page 3 of the present Application.

Moreover, given the different purpose of Yoneyama and the conventional wisdom described on page 3 of the present Application, Applicant believes that the present invention

cannot be formed from this reference, either alone or in combination with Homsey.

Hence, turning to the clear language of the claims, in Yoneyama there is no teaching or suggestion of: “... optical transmission path monitoring system ... an optical fiber monitoring probe light for monitoring optical fibers which constitute some parts of said optical transmission paths; and an optical amplifier-repeater monitoring probe light for monitoring optical amplifier-repeaters which constitute other parts of said optical transmission paths”, as required by independent claim 1. The remaining independent claims have similar language.

Therefore, Applicant submits that all pending claims are patentable over Yoneyama, if for no reason than dependence from these independent claims.

Relative to the rejection for claims 2, 3, 14, 15, 24, and 25, the Examiner alleges that “*... it would have been well within the realm of knowledge of one skilled in the art to select any desirable wavelength for....*” However, again, Applicant submits that this is the wrong legal standard for review, as clearly stated in MPEP §2143.01: “*A statement that modifications of the prior art to meet the claimed invention would have been “ ‘well within the ordinary skill of the art at the time the claimed invention was made’ ” because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a prima facie case of obviousness without some objective reason to combine the teachings of the references.*”

Relative to the rejection for claims 6, 7, 17, 18, 28, and 29, the Examiner is understood as having invoked Office Notice and is respectfully requested to provide a reference properly combinable with Yoneyama. Moreover, the rejection of record merely recites the alleged benefit to be gained if the modification were to be made. Applicant

submits that such conclusory reasoning is clearly impermissible hindsight.

Relative to the rejection for claims 9, 10, 20, and 21, the Examiner concedes that Yoneyama fails to teach or suggest using 2x2 optical couplers and relies upon Homsey to overcome this deficiency. However, as pointed out above, Yoneyama addresses the different problem of power source control, rather than monitoring of the system components, as is the purpose of the present invention and Homsey.

Therefore, Applicant submits that, absent impermissible hindsight and requiring that an objective rationale be incorporated into the prior art evaluation, one of ordinary skill in the art would have not have any reason whatsoever to modify Yoneyama for any reason, since it already allegedly meets its intended purpose of providing feedback to control power sources. There is no suggestion in Yoneyama that 2x2 optical couplers would be needed for any reason, let alone a reason to consult a prior art reference that addresses an entirely different problem of monitoring components, rather than controlling power sources.

Therefore, Applicant submit that the rejection currently of record fails to provide a proper motivation to modify Yonayama, so that claims 9, 10, 20, and 21 are clearly patentable over this reference.

III. FORMAL MATTERS AND CONCLUSION

In view of the foregoing, Applicant submits that claims 1-31, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed

below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

Date: 2/17/05

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